
First published in the *Government Gazette*, Electronic Edition, on 17th November 2016 at 5:00 pm.

No. S 589

**AIR NAVIGATION ACT
(CHAPTER 6)**

**AIR NAVIGATION (AMENDMENT NO. 3)
ORDER 2016**

In exercise of the powers conferred by section 3 of the Air Navigation Act, the Civil Aviation Authority of Singapore, with the approval of the Minister for Transport, makes the following Order:

Citation and commencement

1. This Order is the Air Navigation (Amendment No. 3) Order 2016 and comes into operation on 18 November 2016.

Amendment of paragraph 2

2. Paragraph 2 of the Air Navigation Order (O 2) (called in this Order the principal Order) is amended —

(a) by inserting, immediately after the definition of “appropriate aeronautical radio station” in sub-paragraph (1), the following definition:

““appropriate ATS authority” means the relevant authority designated by the State responsible for providing air traffic services in the particular airspace concerned;”;

(b) by inserting, immediately after the definition of “area control service” in sub-paragraph (1), the following definition:

““ATS route” means a specified route designed by the appropriate ATS authority for channelling the flow of air traffic as necessary for the provision of air traffic services;”;

(c) by inserting, immediately after the definition of “nautical mile” in sub-paragraph (1), the following definition:

““navigation specification” means a set of requirements pertaining to the aircraft and flight crew that is needed to support performance-based navigation within a defined airspace;”;

(d) by inserting, immediately after the definition of “parasail” in sub-paragraph (1), the following definitions:

““performance-based communication” or “PBC” means communication based on performance specifications applied to the provision of air traffic services;

“performance-based navigation” or “PBN” means area navigation based on performance requirements for aircraft operating along an ATS route or in a designated airspace, or for an instrument approach procedure;

“performance-based surveillance” or “PBS” means surveillance based on performance specifications applied to the provision of air traffic services;”;

(e) by inserting, immediately after the definition of “replacement” in sub-paragraph (1), the following definition:

““required communication performance specification” or “RCP specification” means a set of requirements for the provision of air traffic services and associated ground equipment, aircraft capability, and operations, that is needed to support performance-based communication;”;

(f) by inserting, immediately after the definition of “required navigation performance” in sub-paragraph (1), the following definition:

““required surveillance performance specification” or “RSP specification” means a set of requirements for the provision of air traffic services and associated ground equipment, aircraft capability, and operations, that is needed to support performance-based surveillance;”;

- (g) by deleting the definition of “RNP type” in sub-paragraph (1); and
- (h) by deleting the words “radio and radio navigation” in sub-paragraph (6)(c)(ii) and substituting the words “communication, navigation and surveillance”.

Amendment of paragraph 9

3. Paragraph 9(1) of the principal Order is amended by deleting the words “Transport or Aerial Work Category” and substituting the words “Transport, Aerial Work or Private Category”.

Amendment of paragraph 13

4. Paragraph 13 of the principal Order is amended —

- (a) by deleting sub-paragraph (1) and substituting the following sub-paragraph:

“(1) An aircraft must not fly unless the aircraft is so equipped with communication, navigation and surveillance equipment as to —

- (a) comply with the law of the country in which the aircraft is registered or with the law of the State of the operator; and
 - (b) enable communications to be made, the aircraft to be navigated, and surveillance of the aircraft to be effected, in accordance with the provisions of this Order.”;
- (b) by deleting the words “radio and radio navigation” in sub-paragraphs (2), (4) and (5) and substituting in each case the words “communication, navigation and surveillance”;

- (c) by deleting sub-paragraph (2A) and substituting the following sub-paragraph:

“(2A) A Singapore aircraft to be operated under instrument flight rules must not fly unless the aircraft is so equipped with communication, navigation and surveillance equipment to ensure that the failure of one item of such equipment at any stage of the flight does not prevent the aircraft from proceeding with the flight plan and in accordance with air traffic service requirements, including any additional requirements required to operate in —

- (a) the airspace specified in the Sixteenth Schedule; or
 - (b) a defined portion of airspace or on a route where an RCP specification, a navigation specification or an RSP specification for performance-based communication, performance-based navigation or performance-based surveillance is notified, as the case may be.”;
- (d) by deleting the word “radio” in sub-paragraph (3) and substituting the words “communication, navigation and surveillance”; and
- (e) by deleting the words “Radio and radio navigation” in the paragraph heading and substituting the words “Communication, navigation and surveillance”.

New paragraph 13A

5. The principal Order is amended by inserting, immediately after paragraph 13, the following paragraph:

“Approval of Aircraft Radio Operator

13A.—(1) A person must not operate a radio station in a Singapore registered aircraft that is not in flight unless the person has the Authority’s approval to do so.

(2) The Authority may, subject to such conditions as the Authority thinks fit, grant or renew the approval in sub-paragraph (1) upon being satisfied that the applicant is qualified by his knowledge to operate a radio station in a Singapore registered aircraft.

(3) For the purposes of sub-paragraph (2), the applicant may be required to undergo such examinations and tests or furnish any other evidence as the Authority may determine.

(4) Unless earlier suspended or revoked under section 4C or 4D of the Act, an approval granted or renewed under sub-paragraph (2) is valid for a period of up to 24 months starting on the date of the grant or renewal, as the case may be.”.

Amendment of paragraph 14

6. Paragraph 14 of the principal Order is amended by deleting the words “radio and radio navigation” in sub-paragraphs (1) and (2) and substituting in each case the words “communication, navigation and surveillance”.

Deletion and substitution of paragraph 36A and new paragraphs 36B and 36C

7. Paragraph 36A of the principal Order is deleted and the following paragraphs substituted therefor:

“Performance-based navigation

36A. A person must not operate a Singapore aircraft in an airspace or on a route for which a navigation specification for performance-based navigation is specified by the appropriate ATS authority unless —

- (a) the aircraft is equipped with the navigation equipment required to operate in accordance with the navigation specification; and
- (b) the operator has obtained an approval from the Chief Executive to operate the aircraft in that airspace or on that route.

Performance-based communication

36B. A person must not operate a Singapore aircraft in an airspace or on a route for which an RCP specification for performance-based communication is specified unless —

- (a) the aircraft is equipped with the communication equipment required to operate in accordance with the RCP specification; and
- (b) the operator has obtained an approval from the Chief Executive to operate the aircraft in that airspace or on that route.

Performance-based surveillance

36C. A person must not operate a Singapore aircraft in an airspace or on a route for which an RSP specification for performance-based surveillance is specified unless —

- (a) the aircraft is equipped with the surveillance equipment required to operate in accordance with the RSP specification; and
- (b) the operator has obtained an approval from the Chief Executive to operate the aircraft in that airspace or on that route.”.

Amendment of paragraph 55A

8. Paragraph 55A of the principal Order is amended by deleting sub-paragraph (6) and substituting the following sub-paragraph:

“(6) Sub-paragraph (1) does not apply to —

- (a) an exhibition organiser at an organised event that is located at —
 - (i) an aerodrome; or
 - (ii) any other premises,in the occupation or under the control of the military authorities; or

-
-
- (b) an exhibition of flying organised by the Republic of Singapore Air Force and comprising exclusively military aircraft.”.

Amendment of paragraph 62A

9. Paragraph 62A of the principal Order is amended —

- (a) by deleting sub-paragraphs (2) and (3) and substituting the following sub-paragraphs:

“(2) The Authority may, subject to such conditions as the Authority thinks fit, grant or renew an air traffic controller licence upon being satisfied that the applicant —

- (a) is 21 years of age or older;
- (b) has passed all relevant training courses, examinations or tests as the Authority may require under sub-paragraph (3);
- (c) possesses the necessary knowledge, skill and experience, set out in the manual published under sub-paragraph (3B), to act as an air traffic controller; and
- (d) fulfils the medical examination and medical fitness requirements specified in the Fourteenth Schedule.

(3) For the purpose of sub-paragraph (2)(b), the Authority may require an applicant to undergo such training courses, examinations or tests as may be relevant for acting as an air traffic controller.”;

- (b) by deleting the words “Chief Executive” wherever they appear in sub-paragraph (3A) and substituting in each case the word “Authority”;
- (c) by deleting the word “he” in sub-paragraph (3A) and substituting the words “the Authority”;
- (d) by deleting sub-paragraph (3B) and substituting the following sub-paragraphs:

“(3B) The Authority may, in such manner as it thinks fit, publish a manual called the “Manual of Standards — Licensing of Air Traffic Control Personnel”, containing the standards relating to the licensing requirements applicable to air traffic controllers that the Authority determines to be applicable in Singapore.

(3BA) The Authority may, in such manner as it thinks fit, publish a manual called the “Manual of Standards — Air Traffic Control Training Organisation”, containing the standards relating to the training of air traffic controllers that the Authority determines to be applicable in Singapore.”;

- (e) by deleting the words “Licensing of Air Traffic Control Personnel” in sub-paragraph (3D) and substituting the words “Air Traffic Control Training Organisation”; and
- (f) by deleting sub-paragraph (4).

Amendment of paragraph 64

10. Paragraph 64 of the principal Order is amended —

- (a) by inserting, immediately after sub-paragraph (3), the following sub-paragraph:

“(3A) Except where expressly provided in paragraph 64F, a person must not fly or operate a kite or parasail within the boundaries of any danger area or restricted area unless —

- (a) the person has in force a permit granted under sub-paragraph (4) authorising him to do so; and
- (b) the person flies or operates the kite or parasail in accordance with the conditions of that permit and the requirements of paragraph 64D(1)(b).”; and
- (b) by deleting sub-paragraph (5) and substituting the following sub-paragraph:

“(5) An application for a permit granted under sub-paragraph (4) must be submitted to the Chief Executive, in the form and manner required by the Chief Executive, no later than 7 working days before the date on which the activity in sub-paragraph (1), (3) or (3A) is intended to be carried out.”.

Amendment of paragraph 64A

11. Paragraph 64A of the principal Order is amended —

(a) by inserting, immediately after sub-paragraph (3), the following sub-paragraph:

“(3A) Except where expressly provided in paragraph 64F, a person must not fly or operate a captive balloon within the boundaries of any danger area or restricted area unless —

(a) the person has in force a permit granted under sub-paragraph (4) authorising him to do so; and

(b) the person flies or operates the captive balloon in accordance with the conditions of that permit and the requirements of sub-paragraph (7) and paragraph 64D(1)(b).”; and

(b) by deleting sub-paragraph (5) and substituting the following sub-paragraph:

“(5) An application for a permit granted under sub-paragraph (4) must be submitted to the Chief Executive, in the form and manner required by the Chief Executive, no later than 7 working days before the date on which the activity in sub-paragraph (1), (2), (3) or (3A) is intended to be carried out.”.

Amendment of paragraph 64B

12. Paragraph 64B of the principal Order is amended —

(a) by inserting, immediately after sub-paragraph (2), the following sub-paragraph:

“(2A) Except where expressly provided in paragraph 64F, a person must not cause or permit the release of a free flight aerial object within the boundaries of any danger area or restricted area unless —

(a) the person has in force a permit granted under sub-paragraph (3) authorising him to do so; and

(b) the person causes or permits the release of the free flight aerial object in accordance with the conditions of that permit and the requirements of paragraph 64D(2)(b) and (c).”; and

(b) by deleting sub-paragraph (4) and substituting the following sub-paragraph:

“(4) An application for a permit granted under sub-paragraph (3) must be submitted to the Chief Executive, in the form and manner required by the Chief Executive, no later than 7 working days before the date on which the activity in sub-paragraph (1), (2) or (2A) is intended to be carried out.”.

Amendment of paragraph 64D

13. Paragraph 64D of the principal Order is amended —

(a) by deleting the words “danger area, restricted area or” in sub-paragraph (1)(a); and

(b) by deleting the words “danger, restricted or” in sub-paragraph (2)(a).

Amendment of paragraph 64E

14. Paragraph 64E(1) of the principal Order is amended by deleting the words “in writing” and substituting the words “, in the form and manner required by the Chief Executive,”.

Amendment of paragraph 72B

15. Paragraph 72B of the principal Order is amended —

- (a) by deleting the words “Chief Executive” wherever they appear in sub-paragraphs (2) and (3) and substituting in each case the word “Authority”;
- (b) by deleting the word “he” wherever it appears in sub-paragraphs (2) and (3) and substituting in each case the words “the Authority”;
- (c) by deleting sub-paragraphs (5) to (8); and
- (d) by deleting the words “and paragraph 72C” in sub-paragraph (9).

Deletion of paragraph 72C

16. Paragraph 72C of the principal Order is deleted.

Amendment of Fifth Schedule

17. The Fifth Schedule to the principal Order is amended —

- (a) by inserting, immediately after item 10 in the Table of paragraph 4, the following items:

“11. An aeroplane for which the application for a type certificate is submitted to a Contracting State on or after 1 January 2021 and that —

- (a) has a maximum total weight authorised exceeding 27,000 kg FF.
- (b) is authorised to carry more than 19 passengers FF.

12. An aeroplane that has a maximum total weight authorised exceeding 27,000 kg and for which a Certificate of Airworthiness is first issued on or after 1 January 2021 GG.”;

(b) by deleting paragraph (ii) of Scale K2 in paragraph 5 and substituting the following paragraph:

“(ii) An aircraft must be equipped with automatically deployable oxygen equipment and oxygen dispensing units the number of which exceed the number of passenger and cabin crew member seats by at least 10 per cent —

(a) if the aircraft is intended to be operated at a flight altitude above flight level 250; or

(b) if the aircraft is not capable of —

(A) descending from an altitude of up to flight level 250 to flight level 130 within 4 minutes —

(i) in accordance with the emergency descent procedure specified in the relevant flight manual; and

(ii) without flying below the minimum altitudes for safe flight specified in the operations manual relating to the aircraft; and

(B) continuing at or below flight level 130 to its place of intended destination or any other place where a safe landing can be made.”; and

(c) by inserting, immediately after Scale EE in paragraph 5, the following Scales:

“Scale FF.

A means to recover flight recorder data and make such data available in a timely manner.

<i>Aircraft and Circumstances of Flight</i>	<i>Scale of Equipment Required</i>											
	A	B	C	D	E	F	G	H	I	J	K	L
(4) All turbine-engine aeroplanes registered in Singapore exceeding 5,700 kg maximum total weight authorised or authorised to carry more than 19 passengers, and all such aeroplanes operated for the purpose of public transport regardless of weight								H				
(5) All Singapore aircraft when flying in defined portions of airspace where Minimum Navigation Performance Specifications (MNPS) are notified									I			
(6) All Singapore aircraft when flying in defined portions of airspace where a Vertical Separation Minimum (VSM) of 300 metres (1,000 feet) is applied above flight level 290										J		
(7) All Singapore aeroplanes:												
(a) over 5,700 kg maximum total weight authorised											K	
(b) authorised to carry more than 19 passengers												K
(c) operated for the purpose of public transport												K
(8) All Singapore aircraft when flying an ATS route, on an approach procedure, or in a designated airspace, where PBC or PBS applies												L

* Unless the appropriate air traffic control unit otherwise permits in relation to the particular flight and provided that the aircraft complies with any instruction which the air traffic control unit may give in the particular case.

** The radio equipment shall provide for communications on the aeronautical emergency frequency.”;

(c) by deleting the words “radio and radio navigation” in paragraph 3 and substituting the words “communication, navigation and surveillance”; and

(d) by inserting, immediately after Scale K in paragraph 3, the following Scale:

“Scale L.

Such equipment capable of —

(a) meeting the applicable RCP specifications when PBC applies; and

-
-
- (b) meeting the applicable RSP specifications when PBS applies.”.

Amendment of Eleventh Schedule

19. Part I of the Eleventh Schedule to the principal Order is amended —

- (a) by deleting the definition of “Appropriate ATS authority” in Chapter 1;
- (b) by deleting the definition of “ATS route” in Chapter 1;
- (c) by inserting, immediately after the words “Adherence to” in paragraph 3.6.2 of Chapter 3, the word “current”;
- (d) by deleting paragraph 3.6.2.1 of Chapter 3 and substituting the following paragraph:

“3.6.2.1 Except as provided for in 3.6.2.4, an aircraft must adhere to the current flight plan or the applicable portion of the current flight plan for a controlled flight in accordance with 3.6.2.1.1 to 3.6.2.2 unless a request for a change has been made and clearance is obtained from the appropriate air traffic control unit, or unless an emergency situation has arisen which necessitates immediate action by the aircraft, in which event as soon as circumstances permit, after such emergency authority is exercised, the appropriate air traffic services unit must be notified of the action taken and that this action has been taken under emergency authority.”;

- (e) by deleting paragraph 3.6.2.2 of Chapter 3 and substituting the following paragraph:

“3.6.2.2 *Deviations from the current flight plan.* In the event that a controlled flight deviates from its current flight plan, the following action must be taken:

- (a) *Deviation from track:* if the aircraft is off track, the pilot-in-command must take action forthwith to adjust the heading of the aircraft to regain track as soon as practicable.
- (b) *Deviation from ATC assigned Mach number or indicated airspeed:* the appropriate air traffic services unit must be informed immediately.

-
-
- (c) *Deviation from Mach number or true airspeed:* if the sustained Mach number at cruising level varies by Mach 0.02 or more, or the true airspeed at cruising level varies 19 km/h (10 kt) or more, from the Mach number or true airspeed specified in the current flight plan, the appropriate air traffic services must be so informed.
- (d) *Change in time estimate:* except where ADS-C is activated and serviceable in airspace where ADS-C services are provided, the flight crew must notify the appropriate air traffic services unit as soon as possible if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, changes in excess of —
- (i) 2 minutes from that previously notified to air traffic services; or
 - (ii) such other period of time as is specified by the appropriate ATS authority or on the basis of regional air navigation agreements.”;
- (f) by deleting paragraph 3.6.2.2.1 of Chapter 3 and substituting the following paragraph:
- “3.6.2.2.1 When ADS-C services are provided and ADS-C is activated, the air traffic services unit must be informed automatically via data link whenever changes occur beyond the threshold values stipulated by the ADS event contract.”; and
- (g) by deleting paragraph 3.6.2.3 of Chapter 3 and substituting the following paragraph:
- “3.6.2.3 *Change requests.* Requests for changes to the current flight plan must include the information as indicated for the proposed change below:
- (a) *Change of cruising level:* aircraft identification; requested new cruising level and cruising Mach number or true airspeed at this level; revised time estimates (when applicable) at subsequent reporting point or flight information region boundaries.
 - (b) *Change of Mach number or true airspeed:* aircraft identification; requested Mach number or true airspeed.

(c) *Change of route:*

- 1) *Destination unchanged:* aircraft identification; flight rules; description of new route of flight including related flight plan data beginning with the position from which requested change of route is to commence; revised time estimates; any other pertinent information.
- 2) *Destination changed:* aircraft identification; flight rules; description of revised route of flight to revised destination aerodrome including related flight plan data, beginning with the position from which requested change of route is to commence; revised time estimates; alternate aerodrome(s); any other pertinent information.”.

Amendment of Twelfth Schedule

20. Paragraph 10 of the Twelfth Schedule to the principal Order is deleted and the following paragraph substituted therefor:

“Approval of Aircraft Radio Operator (Paragraph 13A)

10. The fees to be paid in respect of an approval under paragraph 13A to operate a radio station in a Singapore registered aircraft that is not in flight are as follows:

- (a) for an examination or test under paragraph 13A(3) of the Order \$80
- (b) for cancellation by a candidate of a booking for an examination or test referred to in sub-paragraph (a) \$30
- (c) for re-scheduling by a candidate of an examination or test referred to in sub-paragraph (a) \$20
- (d) for the grant or renewal of an approval under paragraph 13A(2) \$14”.

Amendment of Thirteenth Schedule

21. Part B of the Thirteenth Schedule to the principal Order is amended by inserting, immediately after the words “Paragraph 36A.”, the following words:

“Paragraph 36B.

Paragraph 36C.”.

*[G.N. Nos. S 573/91; S 49/92; S 60/92; S 180/92; S 61/93;
S 199/93; S 8/94; S 67/98; S 325/2000; S 384/2000;
S 166/2002; S 56/2003; S 440/2003; S 581/2003;
S 331/2005; S 781/2005; S 487/2006; S 640/2006;
S 299/2009; S 278/2010; S 423/2010; S 729/2010;
S 162/2011; S 570/2011; S 124/2012; S 617/2012;
S 348/2013; S 21/2015; S 351/2015; S 803/2015;
S 181/2016; S 475/2016]*

Made on 14 November 2016.

LEE HSIEN YANG

Chairman,

Civil Aviation Authority of Singapore.

[CAAS/LE/LGN/A.1.7.1; MOT.CA.271.10.03.2014;
AG/LEGIS/SL/6/2015/3 Vol. 4]